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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,557	12/20/2003	Bertil JONSSON	07589.0141.PCUS00	1556

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EXAMINER
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KIM, TAE JUN

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/707,557

Applicant(s)

JONSSON, BERTIL

Examiner

Ted Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Applicant's priority claim is as a continuation of PCT/SE02/01235 filed 20 June 2002. However, no copy of the PCT application has been submitted.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, 7, 9, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Savonuzzi (3,167,914). Savonuzzi teaches a gas turbine comprising: a duct for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing 11 arranged radially outside a wall structure, e.g. 33 and the wall downstream, that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts of the wall structure, 33 and the wall downstream, of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element 32 that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall extending from the wall structure of the gas duct to the outer housing 11; the pressure wall is provided with a first flange

extending radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange on the inside diameter of the pressure wall for pressure-tight connection to the wall structure of the gas duct.

4. Claims 1-4, 6-10, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Collman et al (3,077,074). Collman et al teach a gas turbine comprising: a duct for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing (includes 27, 101, 96) arranged radially outside a wall structure (including 37, 39) that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts of the wall structure of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element (40, 34 rigidly joined together form a unitary element) that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall extending from the wall structure of the gas duct to the outer housing 101, 96; wherein the pressure wall is connected to the wall structure of the gas duct 39 and to the outer housing 96 of the same module by means of a bolted connection between 101 and 156 (see col. 5, lines 15-67); the pressure wall is provided with a first flange 156 extending radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange on 40 on the inside diameter of the

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pressure wall for pressure-tight connection to the wall structure of the gas duct; the pressure wall is made of metal.

5. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebel (6,131,384). Ebel teaches a gas turbine comprising: a duct for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing 7 arranged radially outside a wall structure that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts 9a, 6 of the wall structure of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element 8 that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure (9a, 6) from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall 8 extending from the wall structure of the gas duct to the outer housing; wherein the pressure wall is connected to the wall structure of the gas duct and to the outer housing of the same module by means of a bolted connection 12; the pressure wall is provided with a first flange 8c extending radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange at the end of 8a on the inside diameter of the pressure wall for pressure-tight connection to the wall structure of the gas duct; the pressure wall is made of metal; the pressure wall has at least one bellows-shaped section.

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6. Claims 1-4, 6-10, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Chan (5,127,606). Chan teaches a gas turbine comprising: a duct 24 for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing 30, 70 arranged radially outside a wall structure that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts of the wall structure 14, 15 at the aft end of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element 76 that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall extending from the wall structure of the gas duct 14, 15, to the outer housing 30, 70; wherein the pressure wall is connected to the wall structure of the gas duct and to the outer housing of the same module by means of a bolted connection; the pressure wall is provided with a first flange extending radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange on the inside diameter of the pressure wall for pressure-tight connection to the wall structure of the gas duct; the pressure wall is made of metal.

7. Claims 1, 3-7, 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Howard et al (2625,013). Howard teaches a gas turbine comprising: a duct 26 for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing 22, 19, 36

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arranged radially outside a wall structure including 26, 21, 86, 87 that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts of the wall structure 86, 87 of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element 37a that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall extending from the wall structure of the gas duct 86, 87 to the outer housing 19, 36; the pressure wall is provided with a first flange extending radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange on the inside diameter of the pressure wall for pressure-tight connection to the wall structure of the gas duct; the pressure wall is made of metal; the pressure wall has at least one bellows-shaped section.

8. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Huller et al (4,307,568). Huller et al teach a gas turbine including a plurality of modules comprising: a first module 19 having a gas inlet 79, a first housing portion 32 arranged radially outside a first wall portion 28 and a first pressure wall portion 33 extending from said first wall portion to said first housing portion; a second module 21 having a gas outlet, a second housing portion 32 arranged radially around a second wall portion 26 and a second pressure wall portion 35 extending from said second wall portion to said second

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housing portion; a third module 20 having an opening formed inside a third wall portion 25 arranged radially inside a third housing portion 32, said third module 20 having a third pressure wall portion 34 extending from said third wall portion to said third housing portion 32; and said third module being interconnected between said first and second modules by two respective connections, e.g. the connections of the pressure wall portions 33-35 to the housing 32 or to 38 or to the combustor, said connections configuring said first, second and third wall portions to form a gas duct (combustor) to carry gas from said gas inlet to said gas outlet and said connections assembling said first, second and third modules into a series of air pressure separated modules with open pressure areas 19-21 therebetween, said open pressure areas being in open fluid communication with said gas duct (combustor) vi openings 79, 12. It is noted that the walls 33, 34, 35 are pressure walls in that the pressure in each region 19-21 will not be the same. Note that the flow areas for each region and even the holes in the combustor are not sized identically, hence, even if the pressure were to start from the regenerator at the same pressure, they will not enter the combustor at the same pressure and so the walls serve as pressure walls. This is a well known fluid mechanical principle and can be expressed by Bernoulli's Theorem. Alternately, the ideal gas law shows that a gas at a different temperature will have a different pressure and thus the different temperature regions T1-T3 will also have a different pressure



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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4, 6-10, 12 are rejected under 35 U.S.C. 103(a) as being obvious over Collman et al (3,077,074). Collman et al teach a gas turbine comprising: a duct for carrying gas from a gas turbine inlet to a gas turbine outlet, an outer housing (includes 27, 101, 96) arranged radially outside a wall structure (including 37, 39) that defines radially outer limits of the gas duct; the gas turbine, between the inlet and outlet, comprising a plurality of modules, each of which comprises a part of the outer housing and a part of the wall structure of the gas duct; at least two adjacent parts of the wall structure of the gas duct are arranged at a distance from one another; and at least one unitary pressure dividing element (40, 34 rigidly joined together form a unitary element) that divides off a pressure area in the gas duct at a junction between the two adjacent parts of the wall structure from another pressure area situated between the wall structure of the gas duct and the outer housing, the pressure dividing element consisting of a pressure wall extending from the wall structure of the gas duct to the outer housing 101, 96; wherein the pressure wall is connected to the wall structure of the gas duct 39 and to the outer housing 96 of the same module by means of a bolted connection between 101 and 156 (see col. 5, lines 15-67); the pressure wall is provided with a first flange 156 extending

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radially outwards on the outer periphery of pressure wall for pressure-tight connection; the pressure wall is provided with a second flange on 40 on the inside diameter of the pressure wall for pressure-tight connection to the wall structure of the gas duct; the pressure wall is made of metal. As for the pressure dividing element being unitary, while 40, 34 rigidly joined together form a unitary element, being them unitary/integral has been held to be an obvious matter to those of ordinary skill in the art. It would have been obvious to one of ordinary skill in the art to make the pressure dividing element unitary/integral, in order to use fewer elements and/or to simplify the assembly and/or reduce parts inventory.

11. Claims 6, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above prior art in view of the ordinary skill in the art. The above prior art employs pressure walls that by cross section appear to be metal or are disclosed as metal.

However, in order to obviate any doubt, making walls of gas turbines out of metal is notoriously old and well known in the art and it would have been obvious to make them of metal as being a well known and conventional material used in the art.

12. Claim 2, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Savonuzzi (3,167,914) or Howard et al (2625,013), as applied above, and further in view of either Collman et al (3,077,074) or Ebel (6,131,384). Savonuzzi and Howard et al teach various aspects of the claimed invention but do not teach using a bolted connection for the pressure wall and outer housing. Collman et al and Ebel, as applied above, teach employing a bolted connection for the pressure wall and the outer housing. It would have

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been obvious to one of ordinary skill in the art to employ a bolted connection for the two as a well known type of connection employed in the gas turbine art which allows for easy assembly and/or disassembly.

13. Claims 5, 11 are rejected under 35 U.S.C. 103(a) as being obvious over Ebel (6,131,384) or Savonuzzi (3,167,914), as applied above, in view of Horler et al. (4,534,700). Ebel and Savonuzzi teach various aspects of the claimed invention including a pressure wall. Horler et al teach a turbine with a pressure wall 8 that connects the gas wall 1, 7 with the outer wall 2, 3 via a bolted connection. The pressure wall 8 has a bellows-shape (Fig. 2 or Fig. 3, especially) to accommodate thermal expansion. It would have been obvious to one of ordinary skill in the art to employ a bellows-shape pressure wall to accommodate thermal expansion.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huller et al (4,307,568). Huller et al teach a gas turbine including a plurality of modules comprising: a first module 19 having a gas inlet 79, a first housing portion 32 arranged radially outside a first wall portion 28 and a first pressure wall portion 33 extending from said first wall portion to said first housing portion; a second module 21 having a gas outlet, a second housing portion 32 arranged radially around a second wall portion 26 and a second pressure wall portion 35 extending from said second wall portion to said second housing portion; a third module 20 having an opening formed inside a third wall portion 25 arranged radially inside a third housing portion 32, said third module 20 having a third pressure wall portion 34 extending from said third wall portion to said third housing

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portion 32; and said third module being interconnected between said first and second modules by two respective connections, e.g. the connections of the pressure wall portions 33-35 to the housing 32 or to 38 or to the combustor, said connections configuring said first, second and third wall portions to form a gas duct (combustor) to carry gas from said gas inlet to said gas outlet and said connections assembling said first, second and third modules into a series of air pressure separated modules with open pressure areas 19-21 therebetween, said open pressure areas being in open fluid communication with said gas duct (combustor) vi openings 79, 12. It is noted that the walls 33, 34, 35 are pressure walls in that the pressure in each region 19-21 will not be the same. Note that the flow areas for each region and even the holes in the combustor are not sized identically, hence, even if the pressure were to start from the regenerator at the same pressure, they will not enter the combustor at the same pressure and so the walls serve as pressure walls. This is a well known fluid mechanical principle and can be expressed by Bernoulli's Theorem. Alternately, the ideal gas law shows that a gas at a different temperature will have a different pressure and thus the different temperature regions T1-T3 will also have a different pressure. Alternately, making the different regions at different pressures is well known in the art so as to optimize the cooling flow for each set of openings. It would have been obvious to one of ordinary skill in the art to make the different regions 19-21 of different pressures, in order to optimize for the pressure drop across each set of openings in the combustor walls.

*Response to Arguments*

15. Applicant's arguments filed 12/29/04 have been fully considered but they are not persuasive. Applicant's arguments that the references fail to show certain features of applicant's invention are not persuasive because the features upon which applicant relies are not recited in the rejected claim(s). Applicant repeatedly argues for all the reference limitations that are not in the claims. These features which are argued but are not claimed include: there being a series of individual areas of selected pressure is not required (only two pressure areas that are divided by a "pressure wall" are required), the requirement that each module be pressure tight, the modules operating at a selected pressure maintained by a containment structure, there being no other elements to perform the sealing. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Because of the comprehensive reading into the claims of limitations which are not present, applicant's arguments are misdirected.

16. The fact that the pressure dividing wall be unitary, is fully encompassed by the previously identified walls. Applicant's arguments are mislead because again this requirement is only in claim 1 not in claim 7 as alleged by applicant. Once again, applicant is reading limitations into the claims that are not recited therein.

17. With respect to Savonuzzi and Collman et al, applicant also argues the additional use of seals. However, there is nothing in the claim language, which is open ended, to exclude the additional use of seals from playing a role.

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18. With respect to Ebel, applicant argues that Ebel is not directed to a turbine unit but rather a suspension device for a gas turbine. Applicant's arguments are mislead as the gas turbine unit is also disclosed and thus present. The pressure walls identified by the examiner are clearly pressure walls.

19. With respect to Chan, applicant's argues that Chan does not teach a turbine unit but a mount for attaching a turbine engine to the wing. Again, applicant's arguments are mislead as the gas turbine unit is also disclosed and thus present. The pressure walls identified by the examiner are clearly pressure walls.

20. With respect to Howard, applicant's argues that Chan does not teach a turbine unit but a gas engine nozzle. Again, applicant's arguments are mislead as the gas turbine unit is also disclosed and thus present. The pressure walls identified by the examiner are clearly pressure walls. Furthermore, applicant's arguments that the pressure will be "substantially the same" does not mean that the pressure is exactly the same and allows for some pressure difference and thus the wall serves as a pressure wall that divides two pressure regions.

21. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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